

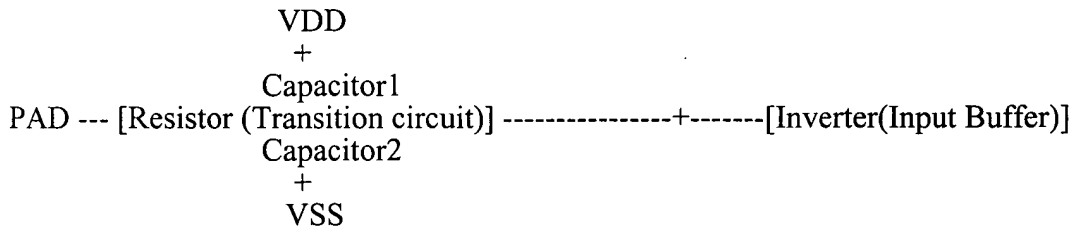
II) REMARKS

Rejections of Claims 7 and 12 Under 35 USC § 102(b) in view of U.S. Patent No.

5,914,516 (Konno)

This rejection is respectfully traversed on the grounds that the Konno patent fails to disclose or suggest: A noise filter for an integrated circuit comprising a transition circuit having an input and an output, said input of said transition circuit being coupled with an input pad of said integrated circuit, said output of said transition circuit being coupled with an input buffer; a first capacitor being inserted between said output of said transition circuit and a first voltage source; and a second capacitor being inserted between said output of said transition circuit and a second voltage source wherein the transition circuit comprises a Pch MOS transistor and a Nch MOS transistor, the source of said Pch MOS transistor and the Nch MOS transistor being coupled with the input of the transition circuit, the drain of the Pch MOS transistor and the Nch MOS transistor being coupled with the output of the transition circuit, the gate of the Pch MOS transistor being coupled with a first reference voltage, and the gate of the Nch MOS transistor being coupled with a second reference voltage; as specified by the amended claim 7 herein.

Instead, the Fig. 3 of Konno patent discloses a resistor as a transition circuit. Konno teaches how the resistance element 11 and the diodes 12, 13 work as a surge protection circuit. That is, Konno does not teach how the Pch MOS transistor and a Nch MOS transistor work as a transition circuit. Fig.3 of Konno has the structure similar to the claim 7:



The difference from the present invention is the structure of the transition circuit. The transition circuit of present invention is an inverter while the transition circuit (of Fig.3 Konno) is a resistor. However, using a resistor as the transition circuit, the resistance becomes higher around the input threshold voltage of the input buffer; that makes the input buffer more susceptible to the input noise.

The point of the present invention is to reduce noise from the input pad; and the transition circuit having a Pch MOS transistor and a Nch MOS transistor may filter noise effectively.

Because the Konno patent does not disclose all elements recited in amended claim 7, withdrawal of the rejection under 35 USC § 102(b) is respectfully requested.

Rejection of Claims 1-3, 5, and 6 under 35 USC § 103(a) in view of U.S. Patent No. 6,353,521 (Gans) and Konno.

This rejection is again respectfully traversed on the grounds that the Gans patent fails to disclose or suggest the claimed CMOS inverter as an input buffer.

Fig. 2 of Gans has the structure suggesting the structure an transition circuit consist of an inverter:



The two transistors 15 ,20 of Fig.2 of Gans are OFF in the normal operation, so the circuit 5 does not work as an inverter.

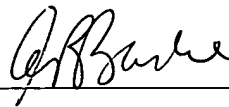
In the normal operation the input signal is transferred through the resistor 10.

Those two transistors becomes active only when the input voltage is out of normal range, but the transition circuit of present invention works in the normal input voltage range. This is because the present invention is to improve the noise immunity of the input circuit, while the circuit of Gans is to protect the input circuit from the ESD noise. There is no description to use an inverter as a variable resistor of the noise filter in the patent of Gans. So the transition circuit of inverter of present invention is not obvious from the circuit of Fig.2 of Gans.

The remaining claims all depend directly or indirectly from claim 1 or 7 and are likewise patentable over the cited references for at least the reasons discussed herein with respect to those independent claims.

Having thus overcome each of the rejections made in the Official Action, withdrawal of the rejections and expedited passage of the application to issue is requested.

Respectfully submitted,



Anthony R. Barkume
Reg. No. 33,831
Attorney for Applicant

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20 Gateway Lane
Manorville, NY 11949
tel (631) 878-0526
fax (631) 980-7997
tony@barkume.com